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AUTHOR	Osborn, Julia; Rothstein, Evelyn
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ABSTRACT

As part of a two-year project that examined the processes by which children initially approach the reading task, a screening test was designed to aid in the selection of the four kindergarten children who were to participate in the project. Consisting of seven parts, the test asked each child to do the following tasks: write his/her name; isolate the initial vowels and consonant sounds of selected words; pick out the grapheme representing the initial phoneme; supply a corresponding phoneme after being shown a grapheme; read words in three contexts; and read four sentences composed from the words in the previous section. Data from the screening test yielded a quantifiable measure of the kindergarten child's information, descriptive information about the child's understanding of the varied pretest tasks, and an informal account of the child's methods of acquiring information. (Tables are appended.) (MAI)

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REPORT OF THE RESULTS OF THE SCREENING TEST

DEVELOPED BY THE

EARLY DECODING STRATEGIES PROJECT*

1975

Julia Osborn
Evelyn Rothstein

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REPORT OF THE RESULTS OF THE SCREENING TEST DEVELOPED BY THE EARLY DECODING STRATEGIES PROJECT

The Early Decoding Strategies Screening Test was designed to aid in the selection of the four children who were to participate in the Early Decoding Strategies Project. These children were to have some information on reading-related items (letter names, sound-symbol correspondences, phonemic segmentation) but were to have no significant sight vocabulary. Data from the Screening Test administration were interesting in their own right as they yielded 1) a quantifiable measure of the kindergarten child's information, 2) descriptive information of the child's understanding of the varied pretest tasks, and 3) an informal account of the child's stated methods of acquiring information.

Description and Rationale

The Screening Test consisted of seven parts. As an introduction the child's ability to recognize and write (or assemble) his/her own name was tested. This served to introduce the child to the interview situation and to the interviewer. It allowed a crude assessment of the extent to which the child had developed graphic skills. Gibson and Levin (1975) suggest that, while practice in writing does not necessarily improve reading, it can improve letter discrimination by attention to distinctive features. The subtests, briefly described, were:

Subtest 1. The child was required to give the conventional names of the alphabet.

Subtest 2. The child was asked to isolate the initial vowels and consonant sounds of selected words.

Subtest 3. Using the same words as in Subtest 2, the child was asked to pick out the grapheme representing the intial phoneme.

Subtest 4. After being shown a grapheme the child was asked to supply the corresponding phoneme.

Subtest 5. The child was asked to read:

a. Words in the initial teaching phase of the project.
b. Ten words randomly chosen from Durkin's list (1966).
c. Individually composed lists of words that each child said he/she could read.

Subtest 6. The child was asked to read four sentences composed of words in Subtest 5a.

Subtests 1-4 were based upon Chall's (1967) conclusions that knowledge of the conventional letter name, of the sound values of letters, and of other phonic information correlates highly with later reading achievement. Subtests 5 and 6 were included to test for word recognition and word recognition in a meaningful context, respectively. In addition subtest 6 gave a measure of the children's sophistication as readers (i.e., their ability to process graphemic, syntactic, and semantic information simultaneously). It was essential that children who evidenced extensive knowlege in these subtests not be included in this study, as much of the early learning process would be unobservable.

METHOD

Subjects

Twelve kindergarten children, 6 boys and 6 girls, from a middle-class school were chosen by their teacher as representative of a middle range of knowledge and abilities. They came from the morning section of the kindergarten class, and had a young average age of 5 years 5 months in November, 1974.

Materials

The materials consisted of two tests--the Early Decoding Strategies Screening Test (EDSS Test) and the Peabody Picture Vocabulary Test (PPVT). A Toshiba KT-216C cassette recorder and the EDS score sheets were used to record the data. There were both an individual score sheet and a cassette for each child. The following materials were used with each section of the pretest:

Warmup Task

1. 7" x 11" index cards containing the children's first name.
2. Blank 7" x 11" index cards for printing middle and last names.
3. Lined paper for the elementary grades (with alternating solid and dotted lines).
4. Pencils.
5. A set of 1 1/2" black felt letters.

Subtest 1

A set of 26 separate 2 1/2" x 3" cards with lower-case letters in wide-line black marker.

Subtest 2

A set of 22 pictures taken from children's workbooks and pasted on 3 " x 5" white index cards. The following items were pictured: apple, buffalo, cat, dog, egg, fox, goat, hat, Indian, jet, lamp, mouse, nest, ostrich, pig, rug, sun, tiger, umbrella, valentine, watch. (Items beginning with k, q, x, y, and z were omitted.)

Subtest 3

1. A set of 22 separate 3" x 5" white index cards with 3 lower-case black letters on each card.
2. The set of 22 picture cards used in Subtest 2.

Subtest 4

A set of lower case letters from Subtest 1.

Subtest 5a

A set of 8 3" x 5" white index cards with a word on each card. The words were: cat, bat, hat, fat, big, bag, the, is.

Subtest 5b

A set of 10 3" x 5" white index cards with a word on each card. The words were: mother, want, help, to, here, and, it, make, little, play.

Subtest 5c

Words indicated by the child printed on an individual 3" x 5" white index card.

Subtest 6

Sentences printed in black marker on 2" x 20" strips of paper. They were:

the cat is big.	the big cat is fat.
is the hat big?	the bag is big.

The EDS Screening Test score sheets provided for entering the correct response, any other response, the child's comments, and the child's behavior.

Procedure

Each child was seen individually in a room near the kindergarten. An examiner interviewed the child, while an observer took notes and tape recorded the conversation. The EDS Screening Test was administered, in the same sequence, to all the children. The procedures for the subtests were as follows:

Warmup Task. Each child was shown his/her name and was asked, "Do you know what this says?" On occasions when the child volunteered a middle or last name, it was similarly presented on a card. Then each child was asked, "Can you write your name without looking at the card?" If they could do so, they were given an appropriate set of letters and asked, "Can you make

your name with these letters?" During this and all other tasks, each child was asked probing questions such as, "How do you know that?," "How did you learn that?," "Who taught you that?," "What else do you know?"

Subtest 1. Each child was shown singly and in the same random order, the lower-case letters. They were asked, "Can you tell me the names of the letters on these cards?" Evidences of a systematic miscueing (b, d, p, q all called p) were probed at the completion of the subtest.

Subtest 2. The children were shown the pictures, one at a time and the examiner said, "I am going to show you a picture and tell you what it is. Can you tell me what sound the word begins with?" When a child showed difficulty understanding the instructions the examiner would demonstrate with one or two words. Words beginning with k, q, x, and z were omitted as their phonemic representation appeared difficult or impossible to segment.

Subtest 3. Letter cards, containing 3 letters, and picture cards from Subtest 2 were shown in pairs. The examiner told the child, "I am going to show you a picture and ask you to find the letter which shows how the word begins. Point to the letter."

Subtest 4. The child was shown individually the letters used in Subtest 1 and was asked, "Can you tell me what sound goes with this letter?

Subtest 5a, b. The words were presented on cards, and the child was asked, "Can you read any of the words on these cards."

Subtest 5c. Each child was asked, "Can you think of any words which you know you can read?" These words were written on 3" x 5" cards. The order was shuffled, and then they were presented individually.

Subtest 6. The four sentences were presented individually and the child was asked, "Can you read this sentence?"

Design

The EDS Screening Test was administered during the last two weeks of October, 1974, and the first week of November, 1974. Subtest 4, which by an oversight had not been included in the initial screening test administration, was given to the children on December 17, 1974. After receiving the screening test results, five children--three boys and two girls--were chosen as likely subjects for the study. The PPV was administered to them, and one boy was dropped on the basis of an unusually high PPV score.

Analysis and Discussion

Warmup Task: Name Recognition and Writing

In response to the presentation of his/her name printed on a card, each child was able to recognize and read his/her name. Ten of the twelve children responded with an unqualified yes to the question, "Can you write your name?" Their actual response varied from those with correct and well-formed letters to those with ill-formed, incorrectly sequenced letters. Two children qualified their yes responses to the question, one by asking

to copy from the name card, and one by indicating that if he wrote his name it wouldn't be correct. This child's prediction was true; upon writing his name, he reversed one of the letters.

Three of the children were able to identify the beginning sound of their first name and the beginning sound of a word that had the same first letter. Two children were able to segment the first sound of their name without being able to segment that same sound from the beginning of another word. The rest of the children could neither segment the initial phoneme of their first name nor of a word beginning with the same letter.

The children appeared to have some confusion about the difference between first and last name and the relationship of a printed name or first name to the whole name. All the children who were asked to give their first name responded appropriately. Of those who were asked to give their last names, approximately half gave their last name and half gave their whole name. This interpretation that the children experienced a confusion between first names, last names and their printed referents was suggested by some of the elaborations children gave when asked to read their first names from a card.

One boy after glancing at the card reported that it contained his first name. (It actually contained a shortened version of his first name.) When asked to read his name, he did so by reciting his entire first and last names. After he had written his nickname, he again read it as his entire first and last name. However, when given the letters for assembling his last name, he indicated that they could be arranged to spell his last name, though he did not know how to do it. Apparently, the child believed that since his nickname, his first name and his whole name all referred to the same person, they can all be "read" from the same graphic stimulus.

Another boy wrote his nickname, and read it correctly. He then wrote an incorrect version of his first name and the first three letters of his last name and explained, "This [Nicohl] spells Nicholas which goes into Nicky, Nicky Joseph. Nicky goes into Joseph and that makes my third name, and my first name is Nicky Bescopo." Here the child is close to understanding that he has three names, one of which is shortened to form a nickname, that these names follow one another in a set order and all have different graphic representations. However, he has some confusion, especially in keeping the three names separate from one another and individually relating them to different graphic representations.

A third child, a girl, when shown her first name incorrectly spelled, was able to identify it as her first name which contained an extra b. However, when shown her last name which contained several of the letters in her first name in addition to h and p, she insisted that the h and p did not belong in her name. It appears that she was able to recognize only her first name. When told that this word was her last name, she denied that it was. When asked to write her name, she responded with her first name and last initial. It appears that she believed that her entire name, which she correctly recited, could be entirely represented by her first name and last initial.

Although some of the children appeared to have a problem understanding the relationship of the various representations of their full names to the graphic representations, most children could recognize and evaluate the correctness of printed version of their first names. Three children spontaneously corrected the examiner's misspellings. Many children had difficulty writing their names and were aware of this before writing or immediately

afterward. When asked to write his name, one child explained that he couldn't do it well because, "I make my e's like sixes." He did reverse the letter e in that way. Two other children wrote letters backwards and immediately verbalized their error and corrected it without prompting.

The responses to "How did you know that was your name?" and "How did you learn that?" were classified in the following categories:

1. Graphic information
2. Information from adult
3. Information from labeled object
4. Identity
5. No response

Eleven of the twelve children were able to indicate that their recognition of their names was related to the letters and letter sequences (Table 1, graphic information). These responses indicated a beginning awareness of the importance of graphic representation. It is important to note that the children frequently used pointing or pointing and some verbal explanation to produce this information. When the child gave responses that could be classifed into several categories, the response categorized as graphic information was given last. After the child's initial response, further probing (repeating the child's statement or turning it into a question) was frequently necessary to elicit graphic information. Responses in the other categories occurred infrequently; responses in the categories identify and information from adult occurred twice, response in the category information from labeled object occurred once. Identity responses were those in which the child indicated recognition of his/her name or an ability to read it. Information from an adult or object meant that the child had been taught his/her name by an adult or had seen it printed on a personal possession.

In summary, it appears that all these kindergarten children could recognize and assemble or write their first names though some had trouble understanding the exact relationship between the written and oral forms of their names, especially where the unabbreviated form of their first name and/or their last name was concerned.

Subtest 1: Conventional Letter Names

The analysis of the children's responses to naming the letters revealed three kinds of information: (a) the rank order of the letters from those most frequently recognized to those least often recognized; (b) the patterns of erroneous responses (Table 2); (c) the types of responses to the probes, "How did you know?" and "How did you learn?" (Table 3).

The number of correctly identified letters ranged from 0 to 23 with an average of 12.5. Of the six children who recognized 18 or more letters correctly, 5 of them miscalled b and p, 3 children miscalled g, and 2 miscalled g and a. The other miscalled letters varied from one individual to another. Of the 5 children who knew some of the letters but less than 18 of them, the following letters were recognized most frequently: x (4 times), o (4 times), i (4 times), n (3 times) and s (3 times). The letters most commonly recognized by all children were x (10), o (10), i (9), s (8), t (8), n(8). The letters x and o appeared particularly salient; the children could spontaneously make remarks such as "x marks the spot" or " It's o because it a circle."

In analyzing the types of errors the children made, it was clear that the errors fell into several categories (see Table 2). They were:

1. Miscalling a number name for a letter.
2. Reversals (either left-right or up-down).
3. Rotations (90°).

4. Overlooking a feature.
5. Adding a feature.
6. Random.

The most common categories of errors were rotations (18 times), overlooking a feature (11 times) and miscalling a number name for a letter (7 times).

The first type of error, miscalling a number for a letter, related to the young child's confusion between letters and numbers. Although the children were explicitly asked to give the names of the letters, they were unable to retain the information that only letter name responses were appropriate and number name responses were not. Furthermore, those erroneous number name responses appeared in the middle and at the end of the list of letters to be identified. At that point, after having given appropriate letter responses to the preceding letters, the children should have been able to realize that the task did not involve identifying numbers. However, the fact that number name responses were offered is in line with Downing's findings (1971-72) that children can not always distinguish between the concepts letter and number.

This interpretation was strengthened by a number of the children's spontaneous elaborations which indicated that the distinction between letters and numbers was not always clear. One child, when shown the letter l, ran her finger down it and said, "One, easy." When asked how she knew it, she said, "It just goes a line down. It's a letter." When asked if one was a letter, she made no reply. Later when she had miscalled b for p and 5 for s, she said she had learned these from Seasme Street when numbers were shown at the end of the program. Apparently, she confused 9 (the number) with p. However, when asked to name some numbers, she did so correctly.

Another child also mistook the letter L for the number 1. When asked how she learned it, she replied, "By copying letters. When asked if it (L)

was a letter, she replied that it wasn't but that she had copied 1, 2, 3, 4 in class. A third child expressed himself more directly, when, after labeling the letter correctly, he said, "I can make an n, that's cool. Anything can be numbers."

The second and third patterns of misnaming involved letter reversals (180°) and rotations (90°). The up-down reversals occurred infrequently. Only one child confused d-p and b-p. This child appeared to believe that a figure formed with a long straight line and a circle was p and he, therefore, called q, b, d, p and g, all p. The left-right reversals were more common. It is interesting to note that d was never miscalled b, and p was never miscalled q. The children appeared to believe that any figure with a circle and a line downward was a p, and any figure with a circle and a line upward was a d. This can explain why the letters d and p were rarely miscalled while the letters b, q and g often were miscalled.

Some of the children were aware of the orientation of the letters as these elaborations show. One girl, ofter correctly labeling an m remarked, "If it were turned around it would be in Dawn's name." Another example arose with the letters p, b, q, d. Upon being shown the letter q (on a letter card), one boy incorrectly identified it as a p. He then picked up a felt letter p (from the set used for name asembly) and turned it to match the q. When presented with the letter card d, he said, "It looks like a p." The examiner responded, "It looks like a p. Is it a p?" The child then moved the felt letter to match the letter card and said, "It's a b, d. It's a b." From these remarks and similar ones, it appeared that children are preceptually well aware of the change in orientation of a letter but frequently are unsure about the importance or labeling of the various orientations.

The errors in the fourth and fifth categories appeared to result from the graphic similarity between the stimulus letter and the erroneous response. Category IV errors occurred when the child overlooked or did not perceive one of the distinctive features of that letter. For example, when the child mistakenly called h an n, it is likely that the child did not attend to the upright line which distinguishes an h from an n. In the fifth category of misresponses, children appeared to add on a feature to the printed stimulus. In this type of error, an r was called an n. These types of errors are consistent with the interpretation that children learn to identify letters by learning the set of features which distinguishes each letter from the others (Gibson, 1969).

Children's responses to the probe questions, "How did you know that letter?" or "How did you learn that letter?" reveal the children's explanations of the origin of their knowledge. (This may or may not be related to the way in which they actually learned the letters.) Most obvious is the importance that the children attached to their names and their friends' names. Almost half of the responses, 37 out of 84, indicated that names were a source of information about letters. The second most numerous set of explanations was concerned with the physical characteristics of the individual letters. However, the size of this category is inflated by the fact that one child made most of these responses. The third set of responses were those in which the children stated that they had learned their letters by writing, copying or drawing them. The fourth category, seeing letters on television, was not restricted to remarks about Sesame Street. The letter x was apparently learned on Caspar the Friendly Ghost when the Ghost made an x in the air and said, "X marks the spot." The last three categories--being taught, being able to associate to a word, and recognition--

were much less salient for the children than the ones previously described. A total of four responses appeared in all three of the categories.

Subtest 2: Isolation of the Initial Phoneme

The children's responses to the question, "What sound does this word begin with?" fell into seven categories:

1. Correct segmentation of the initial phoneme.

   Since it is virtually impossible to isolate the phonemes /b/, /c/, /t/ without the addition of a schwa, all responses with a consonant and a schwa were considered correct.

2. Correct segmentation of two or more phonemes or a syllable.

   This occurred when the children separated two or more phonemes from the total word (i.e. /go/ from goat, /nes/ from nest).

3. Repetition of the whole word.

4. Rhyming.

5. Association.

   There were two types of association responses. One type was a semantic association (valentine-heart). The second type occurred when the word to be segmented referred to an animal or object which produced a characteristic sound of its own (cat-meow).

6. Other phonemic responses.

   These responses indicated an attempt albeit incorrect, to segment the initial phoneme from the word.

7. None.

   These responses were either "don't know," silence, head shaking or other indications of a lack of knowledge.

Out of a total of 252 responses, 81 were correct phoneme segmentations, and 53 were correct syllable segmentations. This is slightly over half of all the responses. Of the 118 misresponses, 53 were word repetitions,

28 were rhyming responses, 11 were associative and 9 were erroneous phonemic segementations; 25 nonresponses occurred (Table 4). It appears that the words were of approximately equal difficulty, although among the consonants, segmenting /w/ from watch appeared to be most difficult and among the vowels segmenting /a/ from apple appeared to be easiest. In general, the words beginning with consonants appeared easier to segment than those beginning with vowels.

When the types of responses for each child were counted, several patterns emerged (Tables 5I, II, III). Those children who could segment 15 or more phonemes correctly, most often erred by segmenting the whole first syllable. Occasionally they repeated the word or made an incorrect phonemic response. It appears that they understood the concept of segmenting and were frequently able to segment the first phoneme.

A second pattern was noted for those children who could segment some but not many of the phonemes. It appeared that they also understood the concept of segmenting a word though they found it more difficult to segment only the phoneme and so segmented the whole syllable instead. These children also made more of the other kinds of errors--word-sound association, rhyming, etc.--than did the first group.

In the third group, composed of those children who could segment no phonemes, there were three patterns. One child, Linda, appeared to understand the concept of segmentation but was only able to segment syllabically. This child's pattern of responses (word-sound association) was similar to those made by the children who could segment only a few phonemes.

Another pattern was seen in the responses of three other children who appeared not to understand the concept of segmentation at all. They realized that a response was required and attempted to give one. One of

them adopted a strategy of repeating the word or associating it to another word, whenever possible. One association was semantic, the other four were sounds characteristic of the animal named. The two other children, who did not appear to understand the concept of segmentation, adopted a strategy of rhyming. After listening to the examiner explain the task, one of the children added, "Do you mean rhymes?" Although the examiner explained again what was required and demonstrated, the child responded, "I don't think I know," and then proceeded to make rhyming responses.

The last child's pattern appeared unique and was perhaps indicative of some perceptual dysfunction. This child frequently would say /f/ or /s/ and then repeat the word. After ten responses like that the examiner ended the test.[1]

The presence of the animal words was distracting to a number of children. One child, who could segment some phonemes but not many, remarked that this task was difficult because "I'm not good at animals." Another child who segmented the initial phonemes readily attributed success to familiarty with the animals when he said, "I just know letters and things because I have them and I went to the zoo and saw all the animals."

Subtest 3: Choosing a Grapheme To Match an Initial Phoneme

Only six of the children completed this subtest. Of the six who did not complete it, four had been unable to complete Subtest 2, and two had begun Subtest 3 but indicated that they could not do it.

Four of the children who segmented 15 or more phonemes in Subtest 2 were able to match 12 or more phonemes to graphemes. One child who had

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[1]It is important to remember that this test was designed to assist in the selection of four children to participate in the study. This child's behavior precluded his participation and he was not tested further.

segmented 18 phonemes was only able to match 8 phonemes to graphemes. The child who segmented 7 phonemes was able to match 4 phonemes to graphemes.

It appeared that words beginning with vowels were slightly more difficult than those beginning with consonants (see Table 6). While most of the erroneous responses appeared to be random, a few appeared to be the result of a salient phoneme within the word, for example, m in lamp, and r in umbrella (Table 6).

Only one child was asked why she chose a particular answer. Her two most common responses were "because it's in my name" (eight times) and "because it's in 'love'" (three times). In each case the chosen letter was in her name or in the word "love," but only once out of the eight times and once out of the three times was it appropriate to the word given in t task. It appears she had some confusion about the task.

More evidence of this confusion was revealed. When given the word "lamp," this child chose m as representing the initial phoneme. When asked why she had chosen m, she replied, "It is in my mother's name--Lucy." A second example of this occurred when she stated that Dad begins with C and "Craig" begins with d. One might speculate that since the child recognized that "mother" and "Lucy" are one and the same person, then a grapheme associated with the one word should also be associated with the other word. She did not understand that letters are related to words in a systematic way.

Subtest 4: Providing a Phoneme Equivalent for a Grapheme

This subtest was administered to eleven children in December, two months after the other subtests. Although 5 of these children had not completed Subtest 3, their knowledge had possibly increased during the two-month interval.

The five children who were able to segment 15 or more phonemes in Subtest 2 were able to give phoneme equivalents for 11 or more graphemes. One of the two children who segmented fewer than 15 phonemes was able to give phonemic equivalents for 6 graphemes. One child who was unable to segment any phonemes gave the phoneme equivalents for 2 graphemes. The other four children gave no correct responses.

The following categories of responses appeared (see Table 7):

1. Appropriate phoneme response.
2. Appropriate letter name response.
3. Inappropriate phoneme response due to a perceptual confusion.
4. Inappropriate letter name response due to a perceptual confusion.
5. Word response containing given phoneme.
6. Number name response.
7. Segmentation of letter name.
8. Other.
9. None.

It is clear that this task was difficult for the children; less than one-third of the responses were correct (category 1) and the largest category was for non-responses (category 9). The most frequent erroneous response was giving the letter name instead of the letter sound (category 2). Not surprisingly, this occurred especially often with letters whose sound, in isolation, is difficult or impossible to form (x, y). This response pattern is particularly interesting in view of the strategy that a number of the children adopted when they did not know how to say the appropriate phoneme. It consisted of shortening the letter name or segmenting the first phoneme of the letter name (category 7). Hence some of the children gave the phonemic equivalent of w as dubber or dub, x as /eck/, or y as /wa/. A number of children commented on this process; one child

was especially articulate about it. When trying to give a phonemic equivalent for y, he said, "I can make the regular sound but then I won't get the right one. If I say it regularly, I will get the whole word y." He was one of the children who gave /wu/ as as a phoneme. And again when he gave /a/ for h, he said, "I can't make the whole name of the letter, I can only make the first part of it." Other children chose the last part of the letter name such as /ch/ for the phonemic representation of h. Fourteen responses were of this form.

Another kind of error appeared when a child incorrectly perceived a grapheme and then gave an appropriate sound or letter name to the incorrectly perceived grapheme (categories 3 and 4). These misperceptions fell into the same categories (reversals, rotations, overlooking or adding a feature) that were observed in the responses to the letter naming task.

The fifth category of responses--giving a word containing the appropriate phoneme--was small; it contained three responses.

The letter-number confusion which many young children appear to experience was responsible for a number of errors. The children forgot they were working with letters and would occasionally mistake a letter for a number that was somewhat similar. For example, o was thought to have the sound zero, and s to have the sound two. Eleven errors were of this form.

The rotation and reversal confusions found in the previous subtests were also found in this subtest. However, the lapse of two months accounted for the increasing awareness that printed symbols with different orientations are indeed different letters. These children commented that a d looked like an upside down p. Another child explained that if were tipped over it would be a 6. It appeared that although some puzzlement about letter orientation remained by the middle of kindergarten year, most children were well aware of its significance.

Subtest 5a: Reading a Selected Group of Words

Three children responded to this subtest. Of the 8 words two children correctly read 2, and one child read 1 (Table 9). However, the misread responses were similar in many ways to the words presented. Of the 10 misread words, 3 shared the same first letter as the printed word, 2 were reversals of the first letter, 6 of the misread words had the same last letters as the stimulus word and 5 had the same vowels. This indicates that at least some of the children were using phonographemic information in trying to read the words.

Subtest 5b: Words the Child Thought He/She Could Read

Only one child responded to this task by naming the following words. They were then printed on cards, shuffled and presented to her. The words and her reading responses were:

Words	Responses
apple	apple
cat	goat
dog	dog
cone	goat
mouse	mouse
goat	(no response)

Interestingly, "cat," "cone" and "goat" appear to be three words the child thinks she knows but actually does not. She also misread one of these words in Subtest 5a when she read "goat" for "big." It appears that when she is unable to read some of these words, she attempts to guess by using one of the words she knows is written on a card.

Subtest 5c: Reading Words Selected from the Durkin List

Of the 10 words presented--mother, want, help, to, here, and, make, little, play, it--one child read only "to" and "it" correctly. For "mother"

she said "mouse" and pointed to the m. Again, "mouse" is a word she knows she can read and so she utilizes it when she attempts to read "mother." For "play" she said "pillow" and commented that the word "play" had a p and an l.

Subtest 6: Reading Sentences

Only two children were tested on reading sentences. The sentences and their responses were:

Sentence	Response (Si)	Response (St)
the cat is big	the coat is	cat
the big cat is fat	the dudge coat is	fat, cat, that, dog
is the hat big?	is the hat/het	the dog
the bag is big	the dog is dudge	the dog, dog.

In both sets of responses, it is notable that the children responded to the words in a sentence similarly to the way in which they responded to them when presented in isolation (Subtest 5a). However, the exceptions are interesting. Child Si, who on Subtest 5a had responded correctly to "the" and "is" and substituted "coat" for "cat," did the same thing while reading the first sentence. However when the word "big" an adjective) was presented in isolation she called it "goat" (a noun). To read "goat" in the sentence instead of "big" would have been syntactically incorrect. Rather than make this type of error she simply stopped reading the sentence. This appears likely, as all of her other sentence responses are syntactically correct even if the individual words (dudge) are not meaningful. [It is possible that she constructed the word "dudge" by reversing b to d, attaching a phonemic value to /w/ to i and by using the letter name "g" to arrive at /duj/.]

SUMMARY

The analysis of the children's responses to the various subtests has shown clearly that a quantitative analysis on the basis of correct versus incorrect responses tells little about the processes by which children form their responses. A simple correct-incorrect dichotomy masks the fact that very few of the responses were truly random. Many of the responses were constructed on principles or ideas which may have been erroneous but represented an attempt to apply some logical rules to the task. The analysis carried out here leads to a view of the child as someone actually attempting to understand a task and to identify or make up a set of rules by which to speak. From this perspective, the errors which are made give as much information about what the child knows as do the correct responses.

The analysis of responses described in this paper was considerably assisted by the children's attempts to answer probing questions. While it is difficult for younger children to explain the abstract processes in which they engaged while formulating their responses, and while the probing questions frequently yielded little information ("I just know it."); some, nevertheless, helped the observer comprehend the child's strategies. For instance, the strategy of abbreviating or segmenting the letter name of a letter whose sound was difficult to pronounce (w, x, n) and offering this as a phoneme equivalent was made clear by a child's explanation. Further, it appears that questions about specific situations or processes are the most likely to yield useful explanations.

A number of general confusions about the reading task appear at the early kindergarten level. Some of these are specific to a given task, others are more general. When asked to identify and write their first and last names, children evidenced some confusion in separating their first,

last and, in some cases, middle names from each other. This may well be a specific instance of the general difficulty children of this age have with the identification of word boundaries. They also evidence some misconceptions about the relationship of the printed symbols to the words they represent. Children are accustomed to hearing themselves called by various names--first and last; first, middle and last; first name only or a nickname. Since these names all refer to the same person they become interchangeable labels. At the graphic level, children appear to believe that a combination of letters which represents only one of these names can also represent one of the others. This may be a specific example of the children's more general lack of knowledge about the constraints of the alphabetic system. The general notion of representation is understood but the specific limitations of the grapheme-phoneme correspondence rules are not. Children are not yet fully aware that the printed symbols relate to the sounds of words rather than to their meanings.

Children's confusion about the terms "letter" and "number" may well be a labeling confusion which represents a deeper confusion about the nature and functioning of the two symbol systems. Even when given explicit instructions, children seem to establish a set for responding solely by numbers or by letter names. Few of them recognize that while both sets of symbols have names, only the letters have phonemic representations. While most of the children tested understood the symbol-name relationships and could name the letters of the alphabet, they were much less certain of the relationships between the printed symbol, its name and its sound. Many children had difficulty responding when asked to give the "sound that goes with this letter." In some cases the terminology had no meaning for the child. In other cases, as noted above, the child lacked knowledge that

only letters can have sounds that "go with them" while both letters and numbers can have names. Interestingly, a number of children appear to have evolved the idea "the sound that goes with" a letter is not the same as its name, but is something shorter. Hence, the strategy of abbreviating or segmenting a letter or number name.

The third general confusion concerns the importance of directionality. In Subtest 1, even early in October, the children were able to distinguish between the symbols formed by a "circle and a line going up" (b and d) and those formed by a "circle and a line going down" (p and q). Those with the upward line were generally called d, those with the downward line were called p. There were no distinctions made within these two general groups. Two months later in December a number of children recognized and were able to talk about the "surprising" importance of directionality. They commented that q looked like a p though it was really g, or that d was an upside down p, or that g when turned upside down would be 6. Frequently these comments were accompanied by turning a felt letter in the appropriate directions.

In summary, the beginning reader, even one who possesses relatively little accurate reading-related information does not respond randomly. The child comes to the reading task with a series of strategies and conceptions which however appropriate or adequate for other tasks may or may not be sufficient or accurate for reading. The child does not know this and so applies this knowledge in a systematic way which frequently results in errors.

To understand the "logic" which underlies the child's conceptions and misconceptions, the examiner can be aided by the child's reasons for his/her responses. This requires eliciting explanations from the child by forming the type of probing questions which can direct the child to an awareness of the rules that were utilized in forming the responses.

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TABLE 1

CHILDREN'S RESPONSES TO "How did you know that was your name?" and TO "How did you learn that?" CATEGORIZED FIVE WAYS.

CHILD	CATEGORIES: GRAPHIC INFORMATION	INFORMATION FROM ADULT	INFORMATION FROM LABELED OBJECT	IDENTITY	NO RESPONSE
Dawn				"I just know it-it's my name.	
Tracy	(puts finger successively on each letter)			"It says Tracy."	
Jennifer	I know how to spell my name--Jennifer.				
Paul	"When I was a baby, she writed me a P and I traced the P. She writed me a A and I traced the A. She writed me a U, I traced the U. She writed me L, I did that."	My mother told me.			
Nicky	"I know it because (points to the letters)."	"my grandmother taught me Nicky"	"I learned this in school (last name). I had it on my crayon box."		

TABLE 1(Continued)

CHILDREN'S RESPONSES TO "How did you know that was your name?" and TO "How did you learn that?" CATEGORIZED FIVE WAYS.

CHILD	CATEGORIES				
	GRAPHIC INFORMATION	INFORMATION FROM ADULT	INFORMATION FROM LABELED OBJECT	IDENTITY	NO RESPONSE
Billy	"That's Billy, B, l, l i, y."			"I know my name."	
Alex	(on last name) I think it's my name because of the H.				(on first name)
Eric				cause I know it's my name.	
Steve	I know how to spell it.			cause I know, it, it's in my mind.	
Siri	(points out examiner's misspelling)				
Linda	I always spell my name at home.				
Teresa	(pointed to h that examiner had put in her first name). I don't have one of those.				

TABLE 2

CHILDREN'S MISRESPONSES TO SUBTEST 1 CATEGORIZED BY TYPE OF MISREPRESENTATION

I MISCALLING OF NUMBER FOR LETTER

Letters	Misresponses	Number of Times
i	one	1
s	two	1
j	one	1
l	one	4

II REVERSALS: LEFT-RIGHT

Letters	Misresponses	Number of Times
b	d	7
q	p	7
g	p	1

REVERSALS: UP-DOWN

Letters	Misresponses	Number of Times
d	p	1
b	p	1
f	t	1

III ROTATION

Letters	Misresponses	Number of Times
m	3	1
c	u	1

TABLE 2 (Continued)

CHILDREN'S MISRESPONSES TO SUBTEST 1 CATEGORIZED BY TYPE OF MISREPRESENTATION

IV OVERLOOKING A FEATURE

Letters	Misresponses	Number of Times
h	n	3
c	r	1
l	i	3
w	v	2
ɑ	o	1
f	r	1

V ADDING A FEATURE

Letters	Misresponses	Number of Times
k	R	2
r	n	2
ɑ	d	1

VI RANDOM

Letters	Misresponses	Number of Times
e	a	1
v	b	1
y	i,r	1
ɑ	l	1
f	h	1

TABLE 3

TYPES OF RESPONSES TO THE QUESTIONS, "How did you know that letter?" or "How did you learn that letter?"

Number of Responses	Type of Responses
37	"that letter is my name/my friend's name'
26[a]	description of some geometric feature or property of letter.
10	experience writing letters
6	letters seen on television
2	taught by adult
1	associates to word containing letter
2	"I just know it."
84	

[a]While the responses in the other categories were given by a variety of children, 6 children gave responses on this category and one of those 6 children gave 17 of the responses.

TABLE 4

NUMBER OF CHILDREN WHOSE SEGMENTATION RESPONSES FELL INTO VARIOUS CATEGORIES FOR EACH OF TWENTY-ONE WORDS

	Response Category						
	Phoneme	Syllable	Word	Rhyming	Association	Other	None
cat (1)[a]	4	1	2	2(hat,bat)	1(meow)		
buffalo(2)	4	2	1	1(puf)	1(moo)		1
hat(1)	5	2	2	2(cat,bat)			
tiger	5	3		1(biger) (boat)		2(tiger,/s/)	1
goat	5	2	1	2(soat)	1(mau)	1(/s/)	
fox	4	4	1	2(box)	1(wolf)		
dog	5	1	2	2(frog,pog)	1(ruff)	1(/s/)	
jet	5	2		2(ket,tet)	1(plane)		1
lamp	4	4	1	1(camp)			2
mouse	5	2	1	1(house)		1(mouse)	2
nest	4	4		2(set,pest)			2
pig	4		3	3(figs)2(big)			2
rug	4		3	2(sug,pug)			3
sun	4		2	2(pun,bun)	1(bright)	1(/n/)	2
valentine	4	4		2(salen,palen) (pawch)	1(heart)		1
watch	2	2	1	2(satch)		2(/ou/,/wool/)	3
apple	4	2	2	1(papple) (tindian)		2(apple/a/)	1
Indian	1	7	1	2(sindian) (keggs)			1
egg	2	1	4	2(heggs) (hostrich)		2(/ē/,/ā/)	1
ostrich	3	5		2(costrich) (untilla)	1(duck)		1
umbrella	3	5	1	2(sumbrella)			1
Total	81	53	28	41	11	9	25

[a]The numbers in parenthesis refer to the total number of times the examiner demonstrated the task with these words.

TABLE 5

PATTERNS OF RESPONSES BY EACH GROUP OF CHILDREN
IN SEGMENTING TWENTY-ONE WORDS

I CHILDREN WHO SEGMENTED 15 OR MORE INITIAL PHONEMES CORRECTLY.

Child	Responses				
	Phoneme	Syllable	Word	Association	Other
Nicky	15	2	4		
Paul	17	2			2
Alex	18	3			
Steve	15	5	1		
Siri	19	1			1
Total	84	13	5		3

II CHILDREN WHO SEGMENTED LESS THAN 15 INITIAL PHONEMES CORRECTLY.

Child	Responses					
	Phoneme	Syllable	Word	Association	Other	None
Dawn	4	12	4			1
Jennifer	7	3	6	2	1	
Total	11	15	10	2	1	1

III CHILDREN WHO COULD NOT SEGMENT ANY INITIAL PHONEMES CORRECTLY.

Child	Responses						
	Phoneme	Syllable	Word	Sound	Rhyming	Association	None
Linda		9	10	1		1	
Tracy			10			5	6
Teresa					20		
Eric					20		
Billy	1	1		8			
Total	1	10	20	9	41	6	6

TABLE 6

THE NUMBER OF CORRECT RESPONSES AND THE NUMBER AND TYPE OF INCORRECT RESPONSES GIVEN BY SIX CHILDREN TO SUBTEST 3

Word	Correct Responses	Incorrect Responses
cat	5	1(ɐ)
buffalo	5	1(t)
hat	3	2(g), 1(t)
tiger	5	1(a)
goat	4	1(t)
fox	4	1(t), 1(a)
dog	5	1(j)
jet	5	1(c)
lamp	2	2(m), 1(j)
mouse	6	
nest	5	1(m)
pig	4	1(r), 1(s)
rug	4	1(t), 1(v)
sun	5	1(n)
valentine	6	
watch	4	1(a), 1(s)
apple	4	2(e)
Indian	2	2(a), 2(e)
egg	4	2(o)
ostrich	2	2(t), 2(e)
umbrella	1	4(r), 1(i)

TABLE 7

CATEGORIZATION OF ELEVEN CHILDREN'S RESPONSES TO SUBTEST 4

	Response								
	Correct		Confused						
	Phoneme	Letter Name	Phoneme	Name	Word	Number Name	Segmenting Letter Name	Other	None
c	5	1						1(/eh/) 1(/s/)	3
f	4	1		1(t)				1(/uh/) 1(/buf/)	3
i			2(/j/)	2(j)	1(hi)	1(one)			5
k	4	1			1(keel)				5
n	4	2	1(/ha/)	1(j)					3
q			6(/p/)	1(q)		1(nine)			3
t	5	1	1(/c/)	1(f)					3
w	2	2		1(m)			2(/du/) 1(dubber)		3
z	5	1				1(two)			4
x		5					3(/eck/)	1(/uh/)	2
u	1	3		2(n)					5
r	5	1		1(j)					4
o	3	6				1(zero)		2(/uh/)	1
l	2			2(i)		4(one)			1
y		3		1(k)	1An-thony		4(/wa/)		2
h	1			1(n)			2(/ch/) 2(/a/)	1(enter)	4
e	1	5						1(uh/)	2
b	3		1(/p/) 1(d/)	1(p) 1(q)		2(nine)			4
a	6	2							3
g	3	2				1(six) 1(nine)			4
j	4	1		1(i) 1(a)					4
d	1	2	2(/bu/)	1(b) 2(p)		1(nine)			2
m	3	2	1(/ent/) 1(/n/)			1(three)			3
s	4	5				1(two)			1
p	4	3	1(/ni/)						3
v	7	1							3
Total	77	50	17	21	3	15	14	9	80

TABLE 8

RESPONSES TO EIGHT WORDS BY THREE CHILDREN
WHO GAVE ONE OR MORE CORRECT RESPONSES

Word	Child		
	1	4	5
cat	cat	cat	coat
bag		dog	dog
fat	fox	vote	
is			is
bat		boat	
big		bingo	goat
hat		that	cat
the		the	the
CORRECT	1	2	2